Measuring Bilingualism/Multilingualism around the World

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Why measure bilingualism?

Engagement in cognitive enriching activities associated with reduced risk of dementia

“Bilingual advantage” on cognition

- Aspects of executive functioning, episodic memory, and visuospatial abilities
- Children, young adults, and older adults
- Some inconsistent findings

Proposed mechanisms

- Inhibition and switching between languages
- Strengthening of attentional and executive control neural networks

Methodological Differences

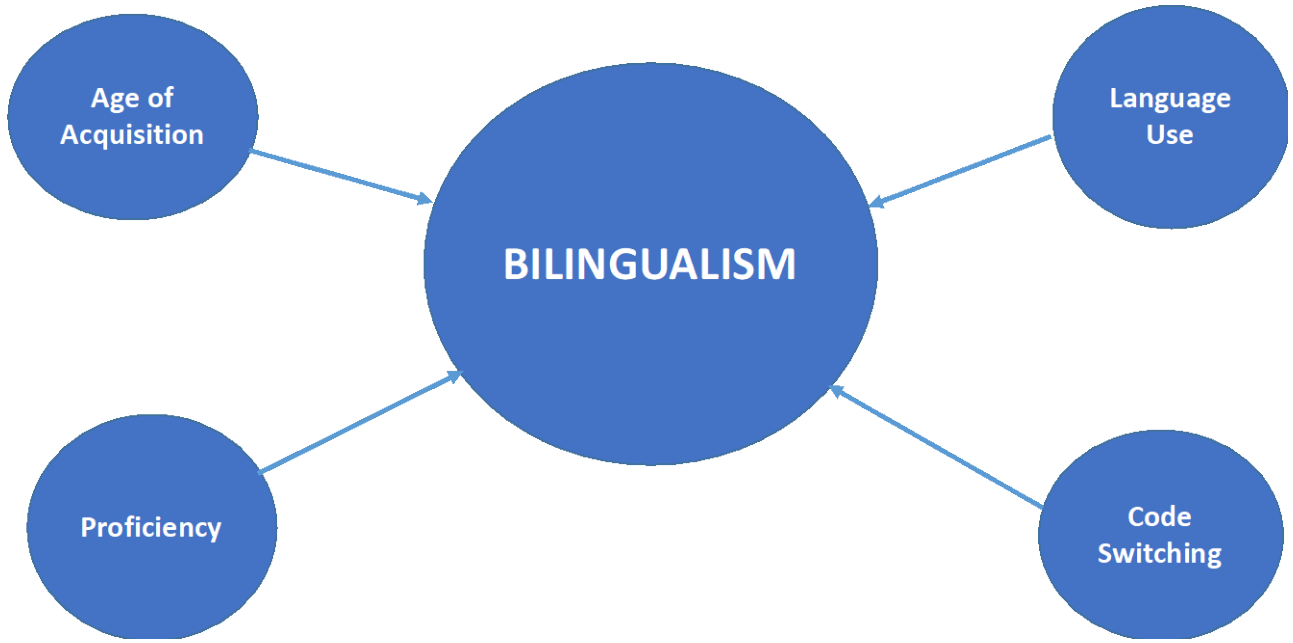
What is bilingualism?

- Inconsistent definition of bilingualism
- Unclear which aspects of bilingualism are most likely to benefit cognition

Inconsistent control for potential confounders

- Educational experiences
- Child and adult socioeconomic status
- Immigration history

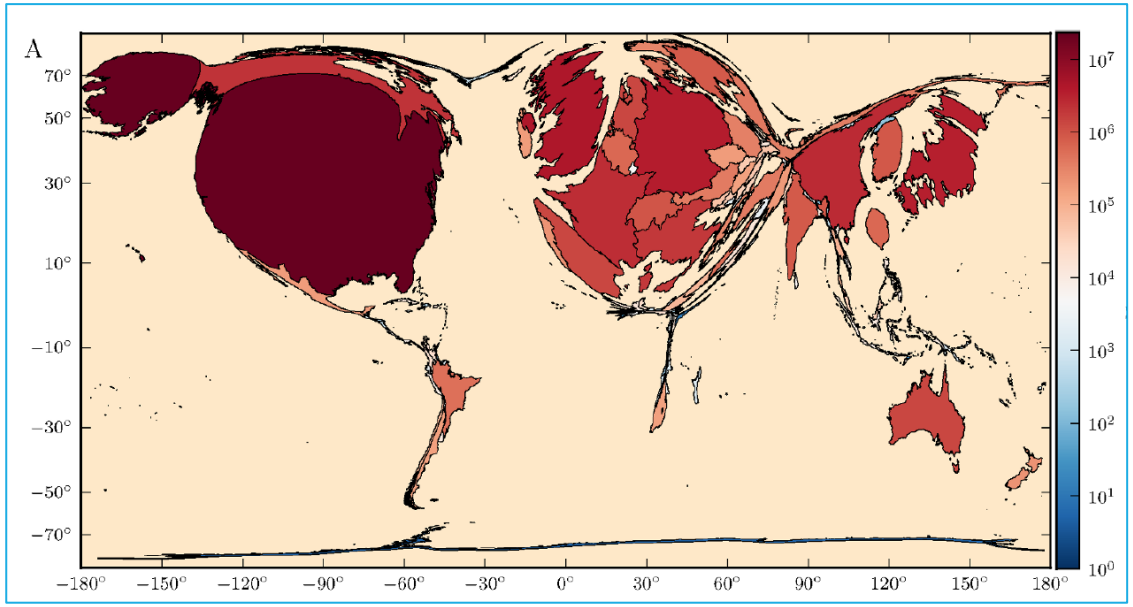
These differences ***could*** explain inconsistent results across studies



Bilingualism/Multilingualism around the world

Geographical bias in research:

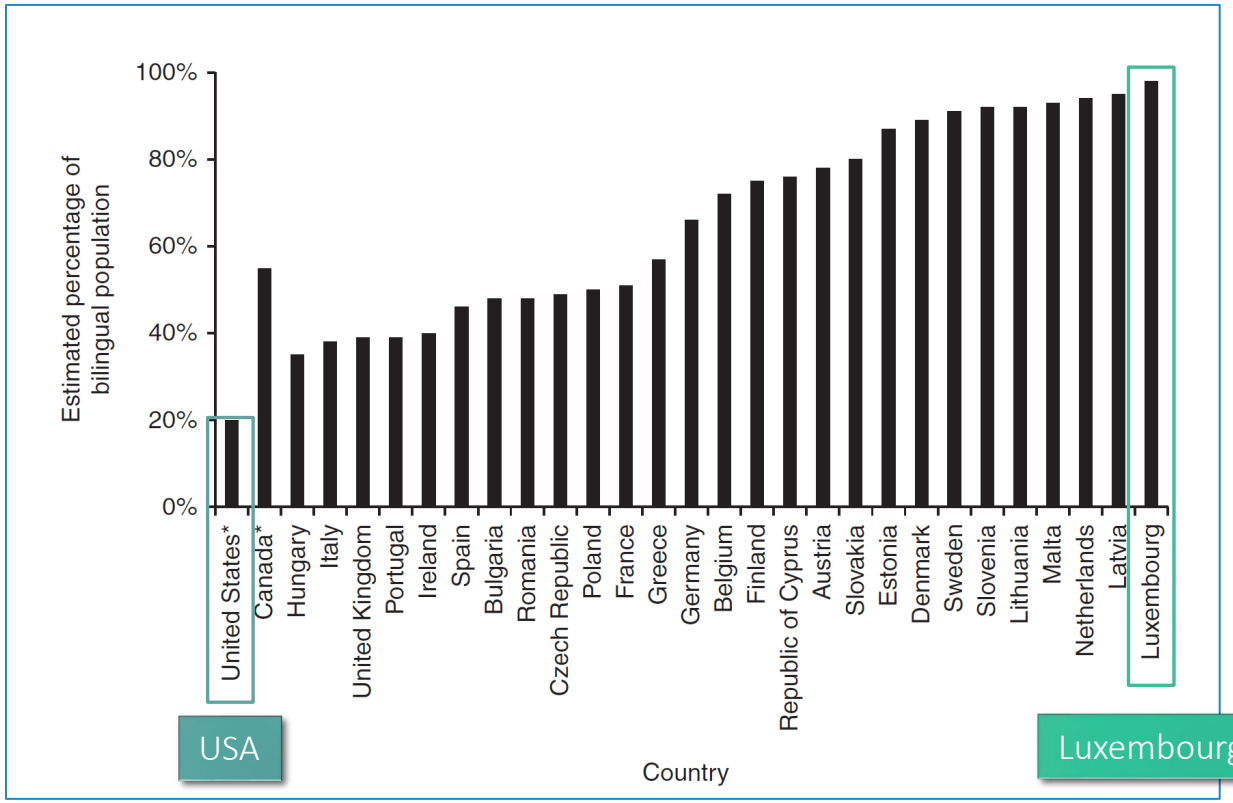
Most of what we know is based on HIC research



World map scaled by number of citations included in Institute for Scientific Information Web of Science
Source: Pan et al., 2012

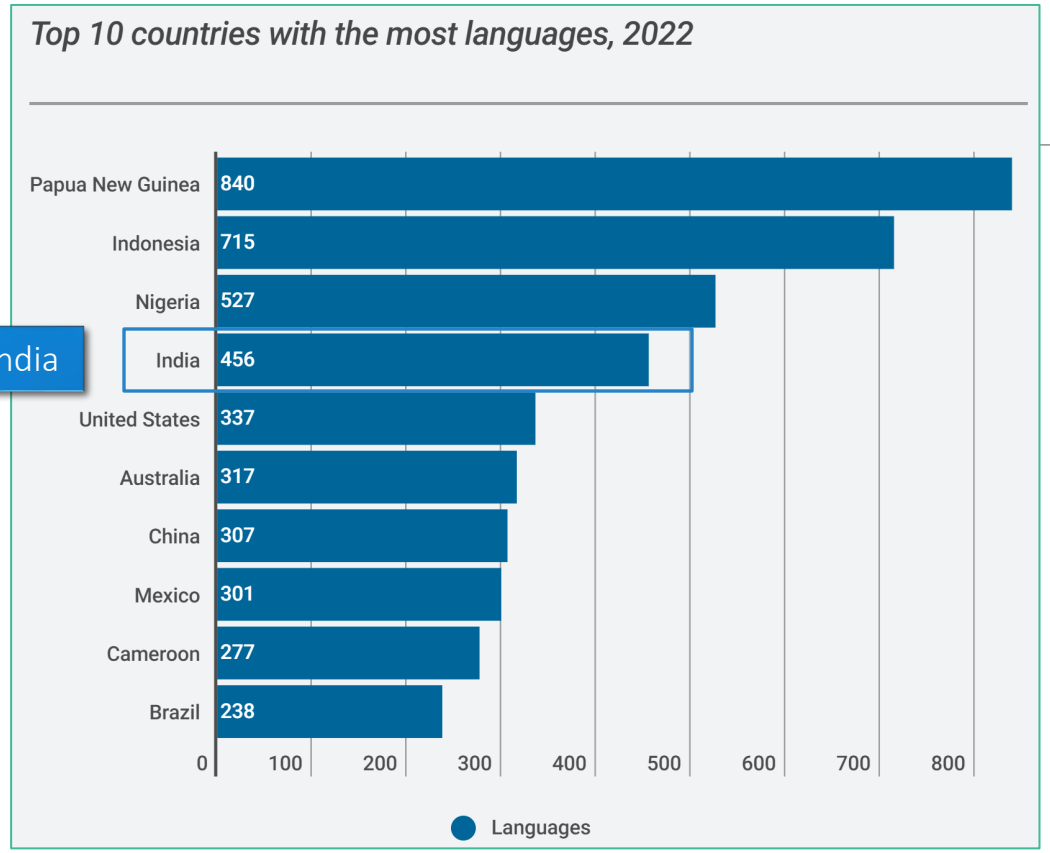
Geographical bias *within multilingualism*:

Estimates of multilingualism are mostly limited to HIC research



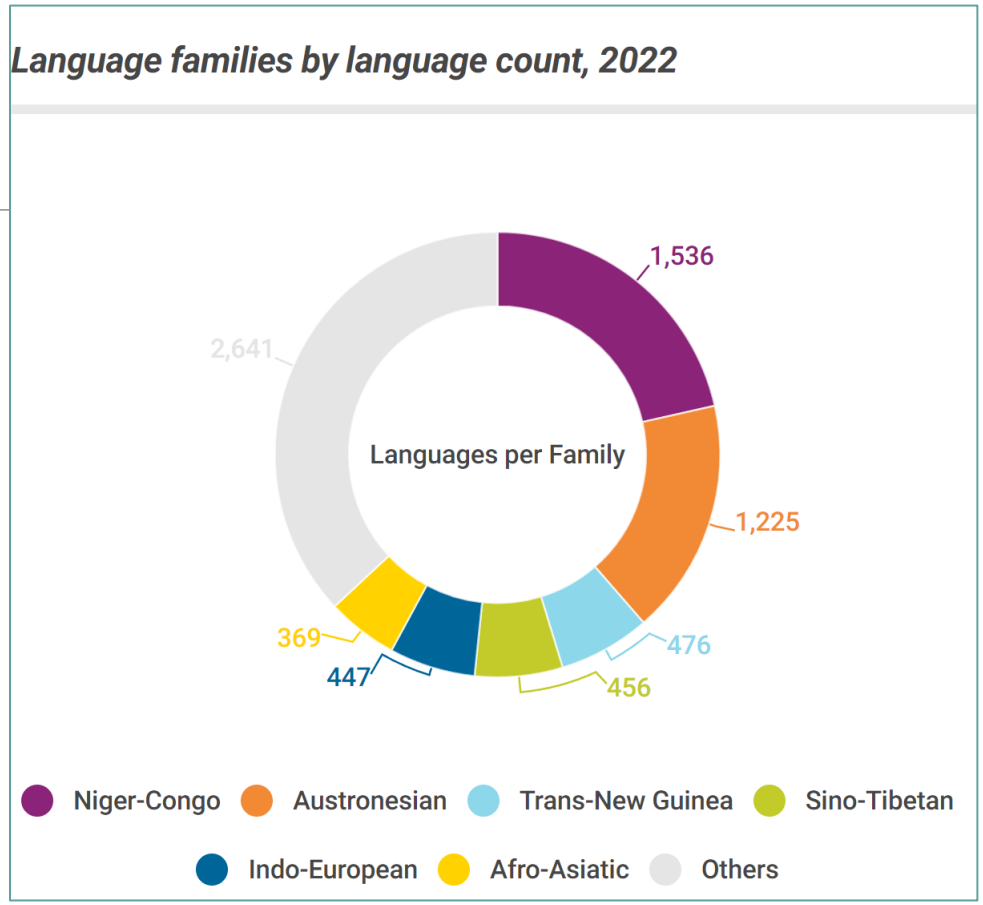
Bilingual population estimates in North America and Europe
Source: Luk, 2017

There is far greater linguistic diversity in LMICs:



India

United States and Australia are the only HIC when counting number of languages per country
Source: Ethnologue



The greatest linguistic diversity in sub-Saharan Africa (Niger-Congo) and Southeast Asia (Austronesian)
Source: Ethnologue

Current Approaches

Longitudinal Aging Study in India – Diagnostic Assessment of Dementia (LASI-DAD)

Mexican Health and Aging Study (MHAS)

Health and Aging in Africa: A Longitudinal Study in South Africa (HAALSI)

Current Measures of Multilingualism

LASI-DAD Wave 2

- Specific Languages Spoken
- Age of Acquisition
- Place of Language Learning
- Frequency of Language Use
- Self-rated Language Proficiency
- Exposure to Languages
- Objective Proficiency Test

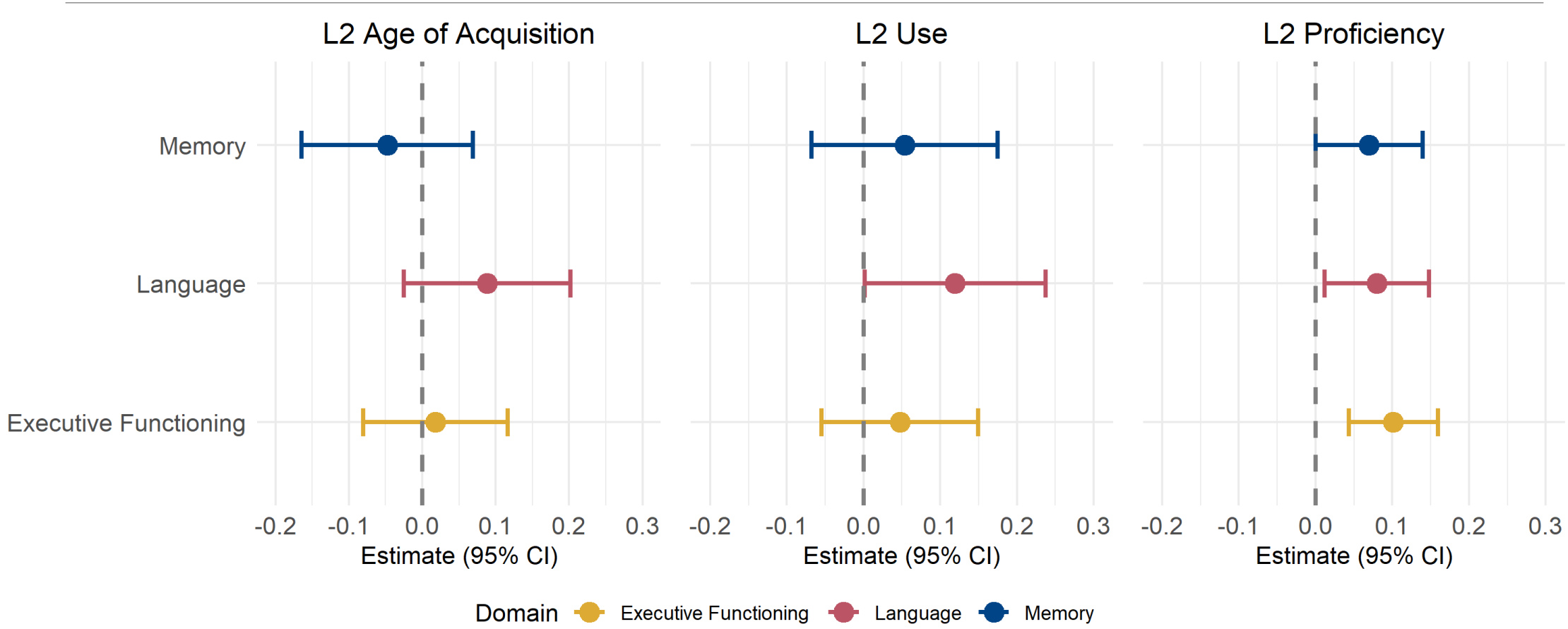
Wave 7

- Specific Languages Spoken
- Age of Acquisition
- Place of Language Learning
- Frequency of Language Use
- Place of Current Language Use
- Self-rated Language Proficiency
- Exposure to Languages
- Language Dominance

HAALSI

- Specific Languages Spoken
- Most Used Language Currently
- Second Most Used Language
- Language Used in School

Preliminary Results: Multilingualism and Cognition – LASI-DAD



Covariates: Age, sex/gender, years of education

Future Applications

Evaluate hypotheses related to cognitive reserve and resilience.

Gain more understanding of cognitive aging and late-life health outcomes of bilingual/multilingual populations.

Better understand the social and environmental factors associated with bilingualism and late-life health.

Funding Sources

LASI-DAD funded by NIA (R01AG051125, U01AG064948, R01AG080473, RF1AG055273, R01AG042778), Bright Focus Foundation, and Gates Ventures.

MHAS funded by NIA (R01AG018016) and the Institution Nacional de Estadística y Geografía (INEGI).

HAALSI funded by NIA (P01 AG041710, 1R01AG069128).